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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): **Peshkin, et al.**	Group Art Unit: 2631
Application Serial No.: **09/264,065**	Examiner: Burd, Kevin M.
Filed: **March 8, 1999**	
Title: **Methods and Apparatus for Communicating Commands and Data Using Logical Channels**	

APPEAL BRIEF

Mail Stop Appeal Brief - Patents
Honorable Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir/Madam:

This is an Appeal from the Examiner's Final Rejection of claims 1 and 4-55. The Final Rejection issued on May 3, 2005. The Notice of Appeal was filed in the U.S. Patent and Trademark Office on June 20, 2005.

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REAL PARTY IN INTEREST

The real party in interest is Silicon Laboratories, Inc.

RELATED APPEALS AND INTERFERENCES

There are no related Appeals or Interferences.

STATUS OF CLAIMS

Claims 1 and 4-55 are pending. Claims 1 and 4-55 have been finally rejected in a Final Rejection dated May 3, 2005. This Appeal is directed to the rejection of claims 1 and 4-55. Claims 1 and 4-55 appear in an Appendix to this Appeal Brief.

STATUS OF AMENDMENTS

No claim amendments were submitted in response to the Final Rejection, dated May 3, 2005.

SUMMARY OF CLAIMED SUBJECT MATTER

A. Claim 1

Independent claim 1 of the present application recites a modem, such as modem 24 in FIG. 3. The modem comprises at least one physical channel (e.g. at least one of 32, 34, 36) for transmitting data from a source (e.g. host computer 22) to a receiver (e.g. remote user computer 52). The at least one physical channel has a first logical channel and a second logical channel, where the first logical channel is configured to transmit only command information from the

source to the modem for controlling telephone line operations of the modem, where the first logical channel is defined by a command type in the command information, and where the command information is for controlling telephone line operations of the modem, which includes a command to call a telephone number or a command to answer an incoming call. Further, the second logical channel is configured to transmit data information from the source to the receiver through the modem, where the second logical channel is defined by a data type in the data information. (See page 8, line 13 – page 9, line 14; and page 14, line 10 – page 16, line 8.)

Thus, the present invention overcomes the shortcomings of conventional modems that require two distinct modes of operation, namely a data mode and a command mode. For example, in conventional modems, after the modems establish a physical connection, the modems enter the data mode, where the local modem receives data from its host and transmits the same to the remote modem. However, if the host desires to issue commands to the local modem, the host must cause the local modem to switch from the data mode to the command mode by sending an "escape sequence" as part of the data, which when detected by the local modem, it is acknowledged by an "OK" reply back to the host. (See pages 1-3.) At this point, the host may issue various commands to the local modem, known as AT commands in the industry, such as a command for disconnecting from the line, a command for changing the line data rate, a command for retraining, etc.

The detection of an escape sequence, which includes certain delays as part of the sequence for robustness purposes (see pages 1-3), is an undesirable requirement for the modems. The invention of claim 1 of the present application eliminates such command processing delays and the need for two distinct modes of operation, by providing a first logical channel and a

second logical channel, where the first logical channel is configured to transmit only command information from the host to the modem for controlling telephone line operations of the modem, where the first logical channel is defined by a command type in the command information, and the second logical channel is configured to transmit data information from the host to the remote end through the modem, where the second logical channel is defined by a data type in the data. As a result, transmission of commands via a separate logical channel facilitates communication and execution of commands without requiring the modem to switch from data mode to command mode and back to data mode.

B. Claim 4

Independent claim 4 of the present application recites a method for use by a modem, such as modem 24 in FIG.3. The method comprises the steps of receiving data information (e.g. from host computer 22) via a first logical channel, the first logical channel being defined by a data type in the data information; and receiving command information via a second logical channel, the second logical channel being defined by a command type in the command information, wherein the first and second logical channels are a part of a single physical channel (e.g. 32, 24 or 36). (See page 8, line 13 – page 9, line 14; and page 14, line 10 – page 16, line 8.) The method further comprises the steps of transferring the data information received from host computer 22 via the first logical channel to a receiver, such as remote user computer 52; reading the command information received via the second logical channel; and executing the command information for controlling telephone line operations of the modem, wherein the command information for

controlling telephone line operations of the modem includes a command to call a telephone number or a command to answer an incoming call.

As explained in conjunction with claim 1 of the present application, the invention of claim 4 of the present application eliminates command processing delays and the need for two distinct modes of operation, namely, a command mode and a data mode, by providing a first logical channel and a second logical channel. According to the invention of claim 4, transmission of commands via a separate logical channel facilitates communication and execution of commands without requiring the modem to switch from data mode to command mode and back to data mode.

C. Claim 20

Independent claim 20 of the present application recites a modem device, such as modem 24 in FIG.3, which is capable of communicating information with a host, such as host computer 22, via a host interface, such as host bus 20, where the information includes command information and data information. The modem device comprises a controller (e.g. micro controller unit 26) in communication with the host interface for receiving the information from the host. The modem device also comprises a physical channel interface including a data pump (see page 9, lines 6-8); and a physical channel in communication with the controller and the physical channel interface, the physical channel including a logical command channel and a logical data channel. (See page 8, line 13 – page 9, line 14; and page 14, line 10 – page 16, line 8.)

The controller provides the command information to the physical channel interface via the logical command channel and provides the data information to the physical channel interface via the logical data channel, where the command information includes a command type defining the logical command channel, and the data information includes a data type defining the logical data channel, and where the command information controls telephone line operations of the modem and includes a command to call a telephone number or a command to answer an incoming call.

As explained in conjunction with claim 1 of the present application, the invention of claim 20 of the present application eliminates command processing delays and the need for two distinct modes of operation, namely, a command mode and a data mode, by providing a first logical channel and a second logical channel. According to the invention of claim 20, transmission of commands via a separate logical channel facilitates communication and execution of commands without requiring the modem to switch from data mode to command mode and back to data mode.

D. Claim 31

Independent claim 31 of the present application recites a modem device capable of communicating information with a host (e.g. host computer 22) via a host interface (e.g. host bus 20), where the information includes command information and data information. The modem device comprises a controller (e.g. micro controller unit 26) in communication with the host interface for receiving the information from the host; a plurality of physical channel interfaces, each of the plurality of physical channel interfaces including a data pump (see page 9, lines 6-8);

and a plurality of physical channels, where the controller is in communication with each of the physical channel interfaces via at least one of the plurality of physical channels, and where at least one of the plurality of physical channels includes a logical command channel and a logical data channel. (See page 8, line 13 – page 9, line 14; and page 14, line 10 – page 16, line 8.)

The controller provides the command information to the at least one of the plurality of physical channel interfaces via the logical command channel and provides the data information to the at least one of the plurality of physical channel interfaces via the logical data channel, where the command information includes a command type defining the logical command channel, and the data information includes a data type defining the logical data channel, and where the command information controls telephone line operations of the modem and includes a command to call a telephone number or a command to answer an incoming call.

As explained in conjunction with claim 1 of the present application, the invention of claim 31 of the present application eliminates command processing delays and the need for two distinct modes of operation, namely, a command mode and a data mode, by providing a first logical channel and a second logical channel. According to the invention of claim 31, transmission of commands via a separate logical channel facilitates communication and execution of commands without requiring the modem to switch from data mode to command mode and back to data mode.

E. Claim 42

Independent claim 42 of the present application recites a method of communicating information between a modem device 24 and a host via 22 a host interface 20. The modem

device includes a controller 26 in communication with the host interface and a physical channel (32, 34 or 36), wherein the physical channel is in communication with a physical channel interface having a data pump (see page 9, lines 6-8), and the information including command information and data information. The method comprises defining a logical command channel in the physical channel based on a command type; defining a logical data channel in the physical channel based on a data type; providing the command information, including the command type, to the physical channel interface via the logical command channel, wherein the command information controls operations of the data pump and includes a command to call a telephone number or a command to answer an incoming call; and providing the data information, including the data type, to the physical channel interface via the logical data channel. (See page 8, line 13 – page 9, line 14; and page 14, line 10 – page 16, line 8.)

As explained in conjunction with claim 1 of the present application, the invention of claim 42 of the present application eliminates command processing delays and the need for two distinct modes of operation, namely, a command mode and a data mode, by providing a first logical channel and a second logical channel. According to the invention of claim 42, transmission of commands via a separate logical channel facilitates communication and execution of commands without requiring the modem to switch from data mode to command mode and back to data mode.

F. Claim 55

Independent claim 55 of the present application recites a modem device 24 capable of communicating information with a host 22 via a host interface 20 , the information including

command information, message information and data information. The modem device comprises a controller 26 in communication with the host interface for receiving the information from the host. The controller includes a transfer register having a receive first-in/first-out (FIFO) register 42 for storing the data information; a transmit FIFO register 44 for storing the data information; a mailbox 46 for storing the command information and the message information. (See page 9, line 15 – page 15, 7.) Each of the command information and the message information includes a type and a channel number, and the command information controls operations of a data pump and includes a command to call a telephone number or a command to answer an incoming call.

The modem device further comprises a physical channel interface including the data pump, and a physical channel in communication with the controller and the physical channel interface, the physical channel including a logical command channel and a logical data channel, where the controller provides the command information and the message information from the mailbox to the physical channel interface via the logical command channel based on the type and the channel number and communicates the data information in the receive FIFO and the transmit FIFO with the physical channel interface via the logical data channel. (See page 8, line 13 – page 9, line 14; and page 14, line 10 – page 16, line 8.)

As explained in conjunction with claim 1 of the present application, the invention of claim 55 of the present application eliminates command processing delays and the need for two distinct modes of operation, namely, a command mode and a data mode, by providing a first logical channel and a second logical channel. According to the invention of claim 55, transmission of commands via a separate logical channel facilitates communication and

execution of commands without requiring the modem to switch from data mode to command mode and back to data mode.

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

A. Claims 1, 4-53 and 55 stand rejected under 35 U.S.C. §103 as being unpatentable over U.S. Patent No. 5,943,505 to Lumpkin, et al. (hereinafter "Lumpkin") in view of U.S. Patent No. 4,656,318 to Noyes (hereinafter "Noyes").

B. Claim 54 stands rejected under 35 U.S.C. §103 as being unpatentable over Lumpkin in view of Noyes, and further in view of U.S. Patent No. 5,001,703 to Johnson, et al. (hereinafter "Johnson").

ARGUMENT

A. Rejection of claims 1, 4-53 and 55 under 35 U.S.C. §103 over Lumpkin in view of Noyes

For the reasons discussed below, Appellant respectfully submits that the present invention, as defined by independent claims 1, 4, 20, 31, 42 and 55, is patentably distinguishable over Lumpkin in view of Noyes, singly or in combination thereof.

As briefly described above in conjunction with claim 1, in conventional modems, data information and command information are transmitted over the same channel and the MCU must switch to command mode in order to process commands. The present application describes two methods of switching to command mode for processing modem commands, such as detecting an escape sequence "+++" with guard time in the data information to switch to command mode and process the incoming data as command information or using an alternative method for detecting "+++" known as Timing Independent Escape Sequence or TIES. The present application further describes the modem commands as conventional "AT" commands, which are well known in the

art. One of ordinary skill in the art understands that a basic "AT" command set includes a dial command ("ATD") or an answer command ("ATA"), which can command the modem to dial a telephone number or answer an incoming call, respectively.

As explained by the present application, the command mode detection of conventional modems for switching to command mode and processing modem commands is undesirable, and the present application describes a solution where modem commands can be processed without a need to detect special sequences for switching from data mode to command mode.

Accordingly, the present application supports that modem commands include a command to call a telephone number or a command to answer an incoming call, as described on pages 1-2 of the present application, and provides a patentably distinguishable solution for processing modem commands without a need to detect special sequences for switching from data mode to command mode. Further, the detailed description of the present application also describes that "Information may be stored in the mailbox interface 46 by the host computer 22 and the MCU 26 to transmit instructions and messages, for example ... dialing control information." (Page 10, lines 20-22.) Also, the present application distinguishes the modem command processing of present invention over the conventional methods, as follows:

> The MCU 26 automatically processes any information received via command logical channels as command information. Consequently, the MCU 26 may detect command information without analyzing each character in the data stream, like the TIES system, or wait two seconds before and after the transmission of an escape sequence, like the Heatherington approach. Thus, multi-channel command information, message information, and data may be transferred over a single physical interface and allows the MCU 26 to perform other tasks instead of repeatedly checking each data character for the presence of an escape sequence. (Page 15, lines 1-7.)

Appellant respectfully submits that Lumpkin describes the processing of DMA interface

commands, as opposed to the invention of independent claims 1, 4, 20, 31 and 42, which relate to processing modem commands for controlling telephone line operations of the modem, such as well-known "AT" commands, that include a command to call a telephone number or a command to answer an incoming call. Appellant respectfully submits that Lumpkin fails to disclose, teach or suggest "executing said command information for controlling telephone line operations of said modem, wherein said command information for controlling telephone line operations of said modem includes a command to call a telephone number or a command to answer an incoming call."

Appellant respectfully submits that Lumpkin fails to disclose, teach or suggest at any place that any of the commands mentioned therein is for any purpose other than controlling the DMA interface. For example, at col. 8, line 64 - col. 9, line 36, Lumpkin describes "normal" and "supervisory" commands that can be communicated between the DTE and the DCE. As shown, the "normal" commands include read/write type commands for the interface. Further, at col. 17, line 42 - col. 18, line 18, Lumpkin describes the "supervisory" commands, which are used for controlling the transfer of data across the interface. Thus, as stated above, there is no mention in Lumpkin that the command information is used by the modem for controlling the telephone line operations of the modem.

Appellant does not claim that a command to call a telephone number or a command to answer an incoming call is a new modem command. However, this limitation clearly distinguishes command information for controlling telephone line operations over the DMA commands of Lumpkin. There is no teaching or suggestion in Lumpkin or any of the cited references to include a command to call a telephone number or a command to answer an

incoming call as part of DMA commands of Lumpkin. In fact, such combination would be senseless, since DMA commands serve a different purpose, which is to control the memory interface at the DTE side, and not the DCE side.

In the Office Action of May 26, 2004, in rejecting claims 1 and 4, the Examiner had equated the DMA (Direct Memory Access) commands of Lumpkin to the command information of claims 1 and 4, which are stated to be for controlling telephone line operations of the modem. Appellant respectfully disagreed with the Examiner's interpretation that commands to operate a DMA are the same as modem commands that control the telephone line operations of the modem. To that end, as a result of an interview with the Examiner and to expedite the prosecution of the present application, Appellant amended claims 1 and 4 to clarify "commands that control the telephone line operations of the modem" over "DMA commands", by reciting "said command information for controlling telephone line operations of the modem includes a command to call a telephone number or a command to answer an incoming call."

In the Office Action of November 2, 2004, the Examiner acknowledged that DMA commands are different from command information of claims 1 and 4, because the DMA commands, unlike command information of claims 1 and 4, do not include a command to call a telephone number or a command to answer an incoming call. In an attempt to cover this void, the Examiner cited Noyes to the effect that it discloses "intelligent modem" commands.

First, it should be noted that in response to the Office Action of May 26, 2004, Appellant had already clearly stated that ATA and ATD commands were known in the art. Therefore, Noyes does not add anything, and a key point still remains that neither Lumpkin nor Noyes

teaches or suggests inclusion of such commands in command information for controlling telephone line operations of the modem.

Second, as acknowledged by the Examiner, Lumpkin teaches DMA commands such as read/write, acknowledgement and interrupt for facilitating data information communication using the DMA. Assuming, arguendo, that one of ordinary skill in the art would combine the teachings of Lumpkin and Noyes, ATA and ATD commands for controlling telephone line operations of the modem would have to be included in the "data information" that is communicated through the DMA to the modem device and "not in the DMA command information." In other words, ATA and ATD would have to pass through the DMA using "the second logical channel configured to transmit data information", and not through "the first logical channel configured to transmit command information," because only the former reaches the modem device for execution, and the latter does not pass through the DMA to the modem device for execution and controlling the telephone line operations of the modem. In other words, there is no teaching or suggestion in Lumpkin to divide the data information channel of the DMA into modem data information and modem command information, let alone any such teaching or suggestion by Noyes.

It is respectfully submitted that neither Lumpkin nor Noyes suggests a desirability of dividing the data information channel of the DMA into modem data information and modem command information. Even more importantly, neither Lumpkin nor Noyes suggests a desirability of modifying Lumpkin's DMA design to send commands to the modem for controlling the telephone line operations of the modem, such as a command to call a telephone number or a command to answer an incoming call. To this end, Appellant would like to point

out that, as stated by the Federal Circuit in **In re Gordon**, 733 F.2d 900, 902 (Fed. Cir. 1984) (see also **In re Fitch**, 972 F.2d 1260 (Fed. Cir. 1992)):

> "The mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious *unless the prior art suggested the desirability of the modification*" (emphasis added).

Similarly, as stated by the Federal Circuit in **In re Chu**, 66 F.3d 292, 298 (Fed. Cir. 1995):

> In a proper obviousness determination, "whether the changes from the prior art are 'minor', ... the changes must be evaluated in terms of the whole invention, including whether the prior art provides any teaching or suggestion to one of ordinary skill in the art to make the changes that would produce the patentee's ... device." (citations omitted.) This includes what could be characterized as simple changes, as in *In re Gordon, 733 F.2d 900, 902, 221 U.S.P.Q. (BNA) 1125, 1127 (Fed. Cir. 1984)* (**Although a prior art device could have been turned upside down, that did not make the modification obvious unless the prior art fairly suggested the desirability of turning the device upside down**). (emphasis added.)

Moreover, independent claim 55, in addition to the above recited limitations, includes "a receive first-in/first-out (FIFO) register for storing said data information; a transmit FIFO register for storing said data information; a mailbox for storing said command information and said message information, wherein each of said command information and said message information includes a type and a channel number." It is respectfully submitted that in addition to the reasons discussed above in conjunction with patentability of the independent claims of the present application, independent claim 55 is further distinguishable over Lumpkin, because Lumpkin fails to disclose a mailbox for command information and message information in addition to receive and transmit FIFOs. For example, Lumpkin does not come close to disclosing, teaching or suggesting a type or a channel number for command information and message information.

Accordingly, it is respectfully submitted that claim 55 should be allowed.

B. Rejection of claim 54 under 35 U.S.C. §103 over Lumpkin in view of Noyes, and further in view of Johnson

Dependent claim 54, which depends from independent claim 4, claim 54 also includes the steps of "monitoring said data information for embedded command information", and "executing said embedded command information for controlling telephone line operations of said modem." It is respectfully submitted the support for the dependent claim 54 may be found on page 15, line 15 - page 16, line 13 of the present application. As stated therein, a modem operating according to the method of claim 54 may receive command information on both the first logical channel and the second logical channel. Appellant respectfully submits that there is no teaching or suggestion by any of the cited references that command information may also be embedded in the data information, in addition to command information being provided through a separate logical channel. There is no teaching or suggestion in any of the cited references of record to use a logical channel for communicating command information and further monitoring the logical channel for communicating data information for embedded command information, and executing the embedded command information for controlling telephone line operations of the modem. Accordingly, it is respectfully submitted that claim 54 should be allowed.

CONCLUSION

Based on the foregoing reasons, the present invention, as defined by independent claims 1, 4, 20, 31, 42 and 55and claims depending therefrom, is patentably distinguishable over the art cited by the Examiner. Thus, claims 1 and 4-55 pending in the present application are patentably distinguishable over the art cited by the Examiner. As such, and for all the foregoing reasons, an early allowance of claims 1 and 4-55 pending in the present application is respectfully requested.

This Appeal Brief is submitted herewith with an Appendix of the appealed claims and the requisite fee for filing the Appeal Brief.

Respectfully Submitted,
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APPENDIX OF CLAIMS ON APPEAL

Claim 1: A modem comprising at least one physical channel for transmitting data from a source to a receiver, said physical channel having a first logical channel and a second logical channel, wherein:

said first logical channel is configured to transmit only command information from the source to the modem for controlling telephone line operations of the modem, said first logical channel being defined by a command type in said command information, wherein said command information for controlling telephone line operations of the modem includes a command to call a telephone number or a command to answer an incoming call; and

said second logical channel is configured to transmit data information from the source to the receiver through the modem, said second logical channel being defined by a data type in said data information.

Claim 2: (cancelled)

Claim 3: (cancelled)

Claim 4: A communication method for use by a modem, said method comprising the steps of:

receiving data information via a first logical channel, said first logical channel being defined by a data type in said data information;

receiving command information via a second logical channel, said second logical channel being defined by a command type in said command information, wherein said first and second logical channels are a part of a single physical channel;

transferring said data information received via said first logical channel to a receiver;

reading said command information received via said second logical channel; and

executing said command information for controlling telephone line operations of said modem, wherein said command information for controlling telephone line operations of said modem includes a command to call a telephone number or a command to answer an incoming call.

Claim 5: The method of claim 4 further comprising the step of transmitting a data block request message.

Claim 6: The method of claim 5 wherein said step of transmitting a data block request message comprises transmitting information indicating a maximum number of bytes of data that should be transmitted.

Claim 7: The method of claim 5 further comprising the step of variably allocating memory allocated to said first logical channel.

Claim 8: The method of claim 7 further comprising the step of implementing a system of credit allocation to control the maximum number of bytes of data transmitted.

Claim 9: The method of claim 8 wherein said step of implementing is carried out to optimize performance of said modem.

Claim 10: The method of claim 5 further comprising the steps of providing a memory space in said modem and allocating a portion of said memory space to each of said logical channels.

Claim 11: The method of claim 10 further comprising the step of tracking the memory allocated to each of said logical channels with a software credit counter .

Claim 12: The method of claim 11 further comprising the step of swapping memory allocated to each of said logical channels responsive to said data block request message.

Claim 13: The method of claim 11 further comprising the step of suspending data transfer if the memory allocated to a logical channel is insufficient to accommodate a requested data block.

Claim 14: The method of claim 4 further comprising transmitting a data transfer message.

Claim 15: The method of claim 14 wherein said step of transmitting a data transfer message further comprising transmitting information indicating the size of the data block transferred.

Claim 16: The modem of claim 1 further comprising an MCU coupled to said physical channel.

Claim 17: The modem of claim 16 wherein said MCU comprises a mailbox memory for storing said command information.

Claim 18: The modem of claim 16 wherein said MCU further comprising transfer registers for storing said data.

Claim 19: The modem of claim 16 further comprising a physical channel interface for transforming serial data from said source to parallel data at said MCU and parallel data from said MCU to serial data transmitted to said receiver.

Claim 20: A modem device capable of communicating information with a host via a host interface, said information including command information and data information, said device comprising:

a controller in communication with said host interface for receiving said information from said host;

a physical channel interface including a data pump; and

a physical channel in communication with said controller and said physical channel interface, said physical channel including a logical command channel and a logical data channel;

wherein said controller provides said command information to said physical channel interface via said logical command channel and provides said data information to said physical channel interface via said logical data channel, and wherein said command information includes a command type defining said logical command channel, and said data information includes a data type defining said logical data channel, and wherein said command information controls telephone line operations of said modem and includes a command to call a telephone number or a command to answer an incoming call.

Claim 21: The device of claim 20, wherein said controller comprises:

a transmit buffer capable of buffering said information prior to providing said information to said physical channel interface; and

a mailbox for use in conjunction with said transmit buffer to distinguish between said command information and said data information in said transmit buffer;

wherein said transmit buffer and said mailbox are in communication with said host interface.

Claim 22: The device of claim 21, wherein said controller further comprises:

a receive buffer capable of receiving and buffering data from said physical channel interface via said physical channel.

Claim 23: The device of claim 21, wherein said mailbox comprises:

a receive register; and

a transmit register;

wherein said controller writes first data to said receive register and reads second data from transmit register, and wherein said host writes said second data to said transmit register and reads said first data from receive register.

Claim 24: The device of claim 23, wherein said first and second data indicate an information type.

Claim 25: The device of claim 24, wherein said information type includes a message information type, a command information type and a data information type.

Claim 26: The device of claim 23, wherein said first and second data indicate a logical channel type.

Claim 27: The device of claim 26, wherein said logical channel type includes a logical command channel type and logical data channel type.

Claim 28: The device of claim 20, wherein said host interface includes a plurality of bi-directional data line, a plurality of address lines, a plurality of control lines and a plurality of status lines.

Claim 29: The device of claim 20, wherein said controller comprises:

a transmit buffer capable of buffering said information prior to providing said information to said physical channel interface; and

a credit counter for use to control information flow from said host.

Claim 30: The device of claim 29, wherein said credit counter indicates a number of bytes that can be received from said host.

Claim 31: A modem device capable of communicating information with a host via a host interface, said information including command information and data information, said device comprising:

a controller in communication with said host interface for receiving said information from said host;

a plurality of physical channel interfaces, each of said plurality of physical channel interfaces including a data pump; and

a plurality of physical channels, wherein said controller is in communication with each of said physical channel interfaces via at least one of said plurality of physical channels, and wherein at least one of said plurality of physical channels includes a logical command channel and a logical data channel;

wherein said controller provides said command information to said at least one of said plurality of physical channel interfaces via said logical command channel and provides said data information to said at least one of said plurality of physical channel interfaces via said logical data channel, and wherein said command information includes a command type defining said logical command channel, and said data information includes a data type defining said logical data channel, and wherein said command information controls telephone line operations of said modem and includes a command to call a telephone number or a command to answer an incoming call.

Claim 32: The device of claim 31, wherein said controller comprises:

a transmit buffer capable of buffering said information prior to providing said information to one of said plurality of physical channel interfaces; and

a mailbox for use in conjunction with said transmit buffer to distinguish between said command information and said data information in said transmit buffer designate for each of said plurality of physical channel interfaces;

wherein said transmit buffer and said mailbox are in communication with said host interface.

Claim 33: The device of claim 32, wherein said controller further comprises:

a receive buffer capable of receiving and buffering data from said plurality of physical channel interfaces via said plurality of physical channels.

Claim 34: The device of claim 32, wherein said mailbox comprises:

a receive register; and

a transmit register;

wherein said controller writes first data to said receive register and reads second data from transmit register, and wherein said host writes said second data to said transmit register and reads said first data from receive register.

Claim 35: The device of claim 34, wherein said first and second data indicate an information type.

Claim 36: The device of claim 35, wherein said information type includes a message information type, a command information type and a data information type.

Claim 37: The device of claim 34, wherein said first and second data indicate a physical channel number and a logical channel type.

Claim 38: The device of claim 37, wherein said physical channel number indicates one of said plurality of physical channels and said logical channel type includes a logical command channel type and logical data channel type.

Claim 39: The device of claim 31, wherein said host interface includes a plurality of bi-directional data line, a plurality of address lines, a plurality of control lines and a plurality of status lines.

Claim 40: The device of claim 31, wherein said controller comprises:

a transmit buffer capable of buffering said information prior to providing said information to said plurality of physical channel interfaces; and

a credit counter for use to control information flow from said host.

Claim 41: The device of claim 40, wherein said credit counter indicates a number of bytes that can be received from said host.

Claim 42: A method of communicating information between a modem device and a host via a host interface, said device including a controller in communication with said host interface and a physical channel, wherein said physical channel is in communication with a physical channel interface having a data pump, and said information including command information and data information, said method comprising:

defining a logical command channel in said physical channel based on a command type;

defining a logical data channel in said physical channel based on a data type;

providing said command information, including said command type, to said physical channel interface via said logical command channel, wherein said command information controls operations of said data pump and includes a command to call a telephone number or a command

to answer an incoming call; and

providing said data information, including said data type, to said physical channel interface via said logical data channel.

Claim 43: The method of claim 42 further comprising:

buffering said information in transmit buffer prior to providing said information to said physical channel interface; and

distinguishing between said command information and said data information in said transmit buffer.

Claim 44: The method of claim 43 further comprising:

receiving data from said physical channel interface via said physical channel; and

buffering said data in a receive buffer.

Claim 45: The method of claim 43, wherein said distinguishing is performed using a mailbox, said mailbox comprises:

a receive register; and

a transmit register;

wherein said controller writes first data to said receive register and reads second data from transmit register, and wherein said host writes said second data to said transmit register and reads said first data from receive register.

Claim 46: The method of claim 45, wherein said first and second data indicate an information type.

Claim 47: The method of claim 46, wherein said information type includes a message information type, a command information type and a data information type.

Claim 48: The method of claim 47, wherein said first and second data indicate a logical channel type.

Claim 49: The method of claim 48, wherein said logical channel type includes a logical command channel type and logical data channel type.

Claim 50: The method of claim 42, wherein said host interface includes a plurality of bi-directional data line, a plurality of address lines, a plurality of control lines and a plurality of status lines.

Claim 51: The method of claim 42 further comprising:

buffering said information in a transmit buffer prior to providing said information to said physical channel interface; and

updating a credit counter for controlling information flow from said host.

Claim 52: The method of claim 51, wherein said credit counter indicates a number of bytes that can be received from said host.

Claim 53: The device of claim 20, wherein said physical channel further includes a logical message channel and said information further includes a message information, said controller provides said message information to said physical channel interface via said logical message channel, and wherein said message information includes a message type defining said logical message channel.

Claim 54: The method of claim 4 further comprising the steps of:

monitoring said data information for embedded command information; and

executing said embedded command information for controlling telephone line operations of said modem.

Claim 55: A modem device capable of communicating information with a host via a host interface, said information including command information, message information and data information, said device comprising:

a controller in communication with said host interface for receiving said information from said host, said controller including a transfer register having:

a receive first-in/first-out (FIFO) register for storing said data information;

a transmit FIFO register for storing said data information;

a mailbox for storing said command information and said message information, wherein each of said command information and said message information includes a type and a channel number, and wherein said command information controls operations of said data pump and includes a command to call a telephone number or a command to answer an incoming call;

a physical channel interface including a data pump; and

a physical channel in communication with said controller and said physical channel interface, said physical channel including a logical command channel and a logical data channel;

wherein said controller provides said command information and said message information from said mailbox to said physical channel interface via said logical command channel based on said type and said channel number and communicates said data information in said receive FIFO and said transmit FIFO with said physical channel interface via said logical data channel.

AF

PTO/SB/21 (08-03)
Approved for use through 07/31/2006. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

		Application Number	09/264,065
		Filing Date	3/8/1999
		First Named Inventor	Joel D. Peshkin
		Examiner Name	Kevin M. Burd
		Art Unit	2631
Total Number of Pages in This Submission	32	Attorney Docket Number	01CON222P

ENCLOSURES *(check all that apply)*

- [X] Fee Transmittal Form
- [ ] Fee Attached
- [ ] Amendment / Reply
- [ ] After Final
- [ ] Affidavits/declaration(s)
- [ ] Extension of Time Request
- [ ] Express Abandonment Request
- [ ] Information Disclosure Statement
- [ ] Certified Copy of Priority Document(s)
- [ ] Response to Missing Parts/ Incomplete Application
- [ ] Response to Missing Parts under 37 CFR 1.52 or 1.53
- [ ] Drawing(s)
- [ ] Licensing-related Papers
- [ ] Petition
- [ ] Petition to Convert to a Provisional Application
- [ ] Power of Attorney, Revocation Change of Correspondence Address
- [ ] Terminal Disclaimer
- [ ] Request for Refund
- [ ] CD, Number of CD(s) _____
- [ ] After Allowance communication to Group
- [ ] Appeal Communication to Board of Appeals and Interferences
- [X] Appeal Communication to Group **(Appeal Notice, Brief, Reply Brief)**
- [ ] Proprietary Information
- [ ] Status Letter
- [X] Other Enclosure(s) (please identify below):

1. Postcard

2. Credit Card Payment PTO Form 2038

Remarks

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm or Individual name	Farshad Farjami, Esq., Reg. No. 41,014 Farjami & Farjami, LLP
Signature	
Date	August 22, 2005

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below.

Type or printed name	Christina Carter		
Signature	Christina Carter	Date	August 22, 2005

PTO/SB/17 (12-04)
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U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Effective on 12/8/2004.
Fees pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818).

FEE TRANSMITTAL
For FY 2005

☐ Applicant Claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT	$500.00

Complete if Known	
Application Number	09/264,065
Filing Date	March 8, 1999
First Named Inventor	Peshkin
Examiner Name	Burd, Kevin M.
Art Unit	2631
Attorney Docket No.	01CON222P (Previously 20944.2200)

METHOD OF PAYMENT (check all that apply)

☐ Check ☒ Credit Card ☐ Money Order ☐ None ☐ Other (please identify): _____

☒ Deposit Account Deposit Account Number: 50-0731 Deposit Account Name: Farjami & Farjami LLP

For the above-identified deposit account, the Director is hereby authorized to: (check all that apply)

☐ Charge fee(s) indicated below ☐ Charges fee(s) indicated below, **except for the filing fee**

☒ Charge any additional fee(s) or underpayments of fee(s) under 37 CFR 1.16 and 1.17 ☒ Credit any overpayments

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FEE CALCULATION

1. BASIC FILING, SEARCH, AND EXAMINATION FEES

	FILING FEES		SEARCH FEES		EXAMINATION FEES		
		Small Entity		Small Entity		Small Entity	
Application Type	Fee ($)	Fee ($)	Fee ($)	Fee ($)	Fee ($)	Fee ($)	Fees Paid ($)
Utility	300	150	500	250	200	100	
Design	200	100	100	50	130	65	
Plant	200	100	300	150	160	80	
Reissue	300	150	500	250	600	300	
Provisional	200	100	0	0	0	0	

2. EXCESS CLAIM FEES

Fee Description	Fee ($)	Small Entity Fee ($)
Each claim over 20 or, for Reissues, each claim over 20 and more than in the original patent	50	25
Each independent claim over 3 or, for Reissues, each independent claim more than in the original patent	200	100
Multiple dependent claims	360	180

Total Claims		Extra Claims		Fee ($)		Fee Paid ($)
	- 20 or HP =	0	x	$50.00	=	$ 0.00

HP = highest number of total claims paid for, if greater than 20

Indep. Claims		Extra Claims		Fee ($)		Fee Paid ($)
	- 3 or HP =	0	x	$200.00	=	$ 0.00

HP = highest number of independent claims paid for, if greater than 3

Multiple Dependent Claims	
Fee ($)	Fee Paid ($)
$360.00	

3. APPLICATION SIZE FEE

If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41 (a)(1)(G) and 37 CFR 1.16(s).

Total Sheets		Extra Sheets		Number of each additional 50 or fraction thereof		Fee ($)		Fee Paid ($)
	- 100 =	0	/ 50 =	0	(round up to a whole number) x	$250.00	=	$ 0.00

4. OTHER FEE(S)

	Fees Paid($)
Non-English Specification, $130 fee (no small entity discount)	
Other: **Filing a brief in support of an appeal**	**$500.00**

SUBMITTED BY

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Name (Print/Type)	Farshad Farjami, Esq.		Date 8/22/05